

17) If I was whirling an object tied to the end of string and released it would go flying off away from me. It would go in the direction in which I released it, so if I let go as I was pointing forward that's where the object and string would go. This would happen because of centripetal force. Centripetal force keeps the object moving in a circle and the force points towards the center of the circle. Once you release it though it's no longer in centripetal force because you're not spinning it any more. The object still has the momentum and force from when you were spinning it though so that's why it goes flying off. Newton's second law applies in this too. The more mass the less acceleration but the more force the more acceleration so if you're spinning a rock you need a lot of force to keep the centripetal force compared to if you were spinning a bead. It all depends on what object you're trying to give centripetal force.



18) You should always wear a seat belt because it keeps you more safe. Say you get into a car crash if you're wearing your seatbelt you just jerk forward but if you don't wear a seatbelt your inertia makes you go flying forward and you could seriously injure yourself. Inertia is a resistance to change in motion so if the car suddenly stops because of an unbalanced force you're still going the speed that the car just was and that's why you fly forward. It happens everytime your car's velocity changes all the objects shuffle around and you lean from side to side. It's just more extreme when you crash. That's why you should always wear a seat belt.